

**BLACK RHINO CONSERVATION AND ECOTURISM
IMPACTS IN NORTH-WESTERN NAMIBIA
ANNUAL REPORT**

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ANNUAL REPORT

1.0 DARWIN PROJECT INFORMATION

Project title	Black Rhino Conservation and Ecotourism Impacts in North-western Namibia.
Country(ies)	Namibia and UK
Contractor	DICE
Project Reference No.	11/005
Grant Value	GBP 111,758.46
Start/Finishing dates	April 2002 – December 2004
Reporting period	April 2002 – April 2003

2.0 PROJECT BACKGROUND

Although 14% of Namibia's surface area is formally designated as protected areas, much biodiversity remains on communal land. This includes a key population of desert-dwelling black rhinos in Kunene. A community-based conservation approach in the early 1980's was balanced by intensive field operations and strong law enforcement carried out by both government and non-governmental organisations. These measures greatly reduced poaching and contributed to wider biodiversity conservation objectives. However, new challenges now face the area, particularly the need to secure the long-term sustainability of monitoring programmes and to further integrate tourism with conservation objectives.

3.0 PROJECT OBJECTIVES

3.1 AIMS AND OUTPUTS

3.1.1 Aims

This project aims to build local capacity to continue the monitoring and management of black rhinos on communal land in Kunene. The project also aims to improve knowledge of both the biological and anthropogenic factors, primarily uncontrolled tourism, limiting the population growth and available range of the Kunene rhino population. This information will be made available both for the Ministry of Environment and Tourism (MET), and for local communities and conservancies, who have a stake in the survival and health of this key rhino population. The project log frame is attached at Appendix 1.

3.1.2 Outputs

The project consists of three components: firstly, an assessment of the habitat suitability and carrying capacity of the current and previously occupied range areas of the black rhino in North-West Namibia; secondly, an evaluation of the impact that human activities, especially tourism, are having on the distribution, movements and interactions of rhinos, in order to derive recommendations to better control access into the current range area; thirdly, to build capacity locally to co-ordinate wildlife monitoring and tourism development programmes that maximise community benefit and black rhino population growth in the region.

3.2 REVISIONS TO OBJECTIVES

The proposed objectives have not changed over the last year. The only modification to the operational plan is that the tourism project manager has not yet been appointed. This appointee will, however, come from an existing MET post, but MET has experienced a delay in making its nomination because this is still awaiting approval from the MET training committee.

4.0 PROGRESS

4.1 SUMMARISED PROGRESS

4.1.1 Activities To-date

The workplan and methodologies have been drafted (see Appendix 2). The Steering Committee met on 23 September 2002, and reached consensus on the key outputs, as well as on inputs from partners relating to methodologies and collaborative programmes. The minutes of the meeting are included in Appendix 3.

The Project Officer has since begun to liaise with NGO and MET partners through individual meetings, while liaison with conservancies has also begun through quarterly planning meetings held from July 2002 to April 2003.

The Project Officer co-ordinated and implemented the five yearly Kunene rhino census, to collect demographic data on the black rhino. The census was started in August 2002 and was completed in April 2003. This also involved on-the-job training of SRT, MET and conservancy field-staff, as part of the key requirements of ensuring efficient monitoring and of continually evaluating rhino population performance.

Collection of ecological data is also ongoing and provides field-staff with training in data collection protocols. The first draft of a spatially explicit, black rhino habitat suitability model has been developed (Appendix 4) to classify terrestrial habitats based on the predicted ecological needs of black rhinos. Data were collected to ground truth this model during November 2002 and April/May 2003. These data will be analysed in July/August 2003 at DICE by the Project Officer to refine this model for a further a fieldwork period in September 2003.

The mapping of tourist entry points has been completed, and levels of tourist use have been estimated. The role of human-induced-disturbance (HID) on the Kunene rhino has been assessed and methodologies are being developed to quantify this impact and the response of rhinos to this potential impact. The Project Officer has attended meetings in the Directorate of Tourism, where the North-western Namibia Tourism Plan is being developed, in order to keep this project abreast of tourism development options being planned for the Kunene area.

A radio interview with a local station in Kent was recorded prior to leaving for Namibia. Nick Baker of The BBC Really Wild Show visited the project in September 2002 to produce a 10 min slot on the rhino project, which will be screened at 5pm on June 1st 2003. Local press releases in Namibia and the UK are planned again for later this year.

Some slippage on the workplan has resulted from the illness of the SRT field-staff co-ordinator, Simson Uri-khob. This has delayed the beginning of the social survey work (see section 4.4 of this report). Slippage was also experienced with the collection of tourism

impacts on rhino due to delays in the MET approving the tourism project co-ordinator. As the candidate's MSc training will not begin until September 2003, this delay is unlikely to have any untoward impacts on the project activities, other than a delay to the timetable because the post will not be filled until later this year.

4.1.2 Additional Outputs

The Project Officer has been involved in developing various other outputs including proposals to address the sustainability of SRT's research programme beyond the Darwin grant period. This aims to establish a facility in the north-west at SRT's field-camp to host visiting students to take part in research activities. The Project Officer has also collaborated with other NGO and MET projects in activities that compliment the outputs of the Darwin Project. These include: drafting a proposal to undertake social surveys of community attitudes to black rhino conservation; drafting a proposal to support work to negotiate development options for tourism operators in the area; collaborating with a study to improve indices of available browse and browse condition for Black Rhino Carrying Capacity Assessment; collaborating with a study to construct a pedigree of the Kunene black rhino, to determine levels of reproductive skew amongst males; support with an MET project to assess training needs for MET, SRT and conservancy field-staff; and, supporting a MET study to refine a database model to meet the Namibian National Meta-population Management Goals.

4.2 RESEARCH METHODS

4.2.1 Demographic Data on the Black Rhino

The Project Officer focused on co-ordinating the five yearly census to obtain data on the demography of rhinos. All rhinos sighted during census patrols were recorded and where possible identified using distinctive markings and horn shape. Each of the eight rhino zones were covered twice, over four days of intensive search time. Six teams of trackers and a photographer visited water points early in the morning to locate sets of footprints, which were tracked until the animal was located. Chance sightings of fresh sets of tracks were followed in the same fashion. ID forms were filled in, photographs taken to aid identification, and positional data recorded using a Global Positioning System Unit (GPS).

4.2.2 The Habitat Suitability Model

Vegetation and topography classification of North-west Namibia is available through the Namibia Atlas Project, accessible at http://www.dea.met.gov.na/data/Atlas/Atlas_web.htm. To stratify the sampling of rhino habitats these data were imported into ArcView (ESRI), with the spatial analysis tool extension, to analyse habitat attributes within home ranges of individual rhino. Rhino density across the Kunene range area was calculated using a script designed to count the number of home range polygons overlapping a 2x2km vector grid.

To provide initial insight into spatial habitat patterns, unique combinations of physical features were combined to form preliminary Ecological Land Units (ELU). This used a digital elevation map (DEM) developed from a contour map of the area. Using this DEM three variables were used in the model:

- continuous slope was reclassified into four initial categories;
- elevation was reclassified into three classes; and,
- aspect was classified into three classes.

To design fieldwork the three DEM-based variables described above were combined. From this information 36 preliminary ELU's were mapped and sampled at high medium and low rhino densities.

4.2.3 Social Attitude Survey

This survey is currently being drafted with the aim of capturing the perceptions of individuals from different households (people living in different geographical, social and economic contexts). The survey will use a combination of random and purposive sampling techniques, employing both closed and open ended questions in areas of high and low rhino density, and parts of the historical range. The aim is to gather a range of perceptions with respect to how people value rhino. Based on this, concepts of economic, cultural and historical values can be better understood to ensure that informed decisions are made concerning issues of rhino management.

The survey will work on basic concepts of how often people see rhino, whether rhinos cause conflict and their perceived opportunistic value. The survey will also explore more complex issues surrounding the future management of rhino in the region. These include aspects such as views of community members living in the historical range of the black rhino in North-western Namibia towards shared access to limited water resources and habitat, should they wish rhino to be re-introduced.

4.2.4 Paternity Analysis Using DNA Extraction From Dung Samples

The study is carried out in collaboration with the University of Sheffield in the UK. Using DNA analysis techniques perfected following studies in Zimbabwe, paternity will be assessed from dung samples collected during the current census and future patrols. These will be used to assess male representation in the population. Should the translocation of males out of Kunene prove a feasible management option to allow expansion of the range in line with national meta-population goals, this study will provide a solid scientific basis to determine which males are the best candidates for removal to establish rhino in new areas.

This study will also determine two other key factors. Firstly, how does the Kunene population compare to the other Namibian populations in terms of genetic variation? Secondly, what is the effective population size of the Kunene rhinos, based on a comparison of allele frequencies at two points in time?

4.3 RESEARCH RESULTS

4.3.1 Demographic Data on the Black Rhino

By December 2002, the census alone had provided data on 94 rhino sightings, recorded during 15,582kms of driven search time, using on average six vehicles each day for a period of 32 days of patrol work. These were analysed to obtain estimates of rhino numbers for five of the eight ecozones inhabited by rhino. Other data were also collected to better understand rhino distribution. These comprised: 446 data points of used middens, 150 points for year round springs, and 67 temporary water points. Preliminary analysis of results indicates more than half of the estimated rhino population in Kunene and Erongo region has been located to date. One death was recorded of a known rhino, aged at 27-30yrs old, in the in the northern most extreme of the current range area. During the last project reporting period more than 300 additional rhino sightings, outside of the census period, have been entered onto the

Kunene database by the Project Officer to enable accurate assessments of population growth and health to be made.

The outcome of the census to date has not only been the collection of vital data to monitor ranging patterns, population health, population status and breeding performance, but also a chance for field-staff to work together and receive on-the-job training to better understand the movement patterns and key requirements for ensuring efficient monitoring of the black rhino. This will aid patrol planning and collaborative rhino programmes between all stakeholders in the future. This has included field-staff MET and SRT; and, registered and emerging conservancies in the region.

4.3.2 The Habitat Suitability Model

A first draft of the habitat suitability model was developed at the beginning of the project and is included in Appendix 4. Preliminary ground truthing of the ELU's has been carried out within two of the five key vegetation and topographic zones. Over 1,700 individual plants, across 222 vegetation plots, were sampled to determine the density of perennial woody species, vegetation composition and browse condition.

These data will be analysed, along with higher resolution digital data of contours, to refine the GIS during an analysis period in the UK from July to the end of August 2003.

4.3.3 Social Attitude Survey

A preliminary draft of the survey is in press with input from MET social scientists working with the Wildlife Integration for Livelihood Diversification (WILD) Project and economic scientists within the MET Directorate of Environmental Affairs.

4.3.4 Paternity Analysis Using DNA Extraction From Dung Samples

The current genotyping of samples, at six loci, indicates very low levels of polymorphism. This suggests significant inbreeding. Due to these low levels of variation, further analysis is underway using more loci to gain enough resolution to accurately assign paternity. Comparisons of different Namibian populations and fluctuations over time, using DNA extraction from skulls of poached black rhino during the 1970's, will indicate the impact of the population crash that occurred as a result of the poaching in the 1970's, when the population dropped from 300 to 60 individuals.

4.4 CONSTRAINTS WITH PROGRESS OF THE PROJECT

Simson Uri-Khob, SRT's Director of Fieldwork and identified for MSc training, acts as the co-ordinator of field-staff for the collection of demographic data on black rhino. In December 2002 he was taken ill. Fortunately, symptoms were identified early and appropriate treatments prescribed. Simson was booked off sick for three months to ensure a full recovery. The doctor's recommendations to-date suggest Simson will still be 100% fit by the time he must travel to the UK to begin his MSc training at DICE. These circumstances have resulted in greater time being spent by the Project Officer on co-ordination of the five yearly census and patrol planning of field-staff. This has been at the expense of other activities on the workplan, such as the design and implementation of the social attitude survey and designing methods to quantify the impact of tourism on black rhino. The revised workplan (see section 4.6) reflects these changes.

The only modification to the operational plan arises because the tourism project manager has not yet been appointed. The initial plan was that this post should be held by a candidate from an NGO operating in the area. Following consultations with in-country partners, this changed to a MET candidate. As a result, the MET have nominated a candidate from an existing MET post, the Chief Control Warden for Etosha and Skeleton Coast Parks. This will ensure a clearer exit strategy that better guarantees long-term sustainability of future tourism planning activities. To-date the MET candidate has received approval in principle to undertake MSc studies at DICE in the UK. However, his submission is pending official approval from the MET training committee.

4.5 ENHANCEMENT TO THE PROJECT

The use of social surveys, to see that options for future benefits to stakeholders are increased, were identified in the log-frame as means of verification for enriching livelihoods in the region. Funding secured through the US Fish and Wildlife Service Rhino and Tiger Fund will cover costs associated with the implementation this phase of the project. This includes enumerators, translators and travel expenses. The project will be supervised by the Project Officer.

A further proposal has been submitted to the UNDP Global Environment Fund Small Grants Programme to explore stakeholder attitudes to the biological management of black rhino in the Palmwag Tourism Concession, where 62% of the Kunene rhinos occur. This will form a case study for reconciling biological management and CBNRM goals in the region, and be supervised by the Project Officer. The study will involve surveys in bordering communities, and with tourism operators using the concession, of the perceived benefits and costs of tourism and the values placed on biodiversity in the concession by these stakeholder groups. Outputs will include: a workshop to negotiate options for benefit distribution from tourism activities; land use planning to minimise the negative impacts on biodiversity from human-induced disturbance, such as uncontrolled tourism; and, meetings with stakeholder groups to discuss biological management options for black rhino in the concession.

The development of research facilities at the SRT field-office will help consolidate the continued research activities of the SRT and the wider MET goals for rhino conservation in the region beyond the Darwin Project grant period. A five year research plan is in press with MET and other NGO partners that will strengthen the exit strategy. This will involve SRT's co-ordinator, Simson Uri-khob, and the MET tourism co-ordinator on completion of their MSc training.

4.7 WORKPLAN FOR THE PRECEEDING REPORTING PERIOD

WORKPLAN - Michael Hearn (DICE/SRT) Darwin Project			2003					2004							
PURPOSE	ACTIVITIES	PARTNERS	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	
Monitor Population health and optimise rhino growth rates	Assist co-ordination/participate in monthly patrols for the collection of rhino & ecological data	SRT/MET & Conservancy													
	Census Report for MET/SRT														
	Rhino Management Group Reports														
	Database reports														
Determine stocking levels of current range and areas for reintroduction	Produce 2nd draft of a habitat suitability model	SRT/MET & Round River													
	Refined 2nd model during fieldwork														
	Collect rainfall data														
	Participation in annual wildlife census														
Determine perceptions of communities within current & historical range	Design of a social survey questionnaire	SRT/USFWS & MET CBNRM Unit & Partner NGO's													
	fieldwork to refine questionnaire														
	Fieldwork to implement questionnaire														
	Produce report														
Investigate representation of male rhino in population/paternity study	Ongoing Collection of rhino dung to extract of DNA	SRT/MET & Uni. Sheffield													
	Analysis of dung samples in the UK														
	Produce report														
Determine Tourism Impacts on black rhino	Collection of entry point data, Ugab, Hoanib, Aub	SRT/MET & private operators													
	Supervise collection of data by MET candidate														
Training /capacity building	Ongoing training of field-staff	SRT/MET, Conservancy & SADC Rhino Prog.													
	Assist co-ordination of theoretical training of fieldstaff														
	2 co-ordinators undertake MSc course at DICE														
Co-ordination/feedback	Ongoing liaison with Partners	All partners													
	1/4 planning meetings of conservancies committees														
	Feedback meetings to steering committee members														
	Steering committee meeting														
Data presentation/workshops	Liaise with project Leader, Nigel Leader-Williams	All partners													
	Analysis of data and report writing in the UK					Jul 7 - Aug 21									

5.0 PARTNERSHIPS

5.1 COLLABORATION WITH PARTNERS

The majority the Project Officer's time has been spent in the host county, so providing direct collaboration between the UK and partners in the host country. During the period of this Darwin project, the Project Officer has been seconded to co-ordinate SRT's research activities, therefore strengthening relationships with this NGO. Relationships with the MET have been strong and should continue to be so. Established links with other partners in the MET and the NGO sector have ensured buy-in of the Darwin Project goals.

Liaison with the conservancies has been maintained at the quarterly planning meetings facilitated by the NGO Integrated Rural Development and Nature Conservation (IRDNC). IRDNC co-ordinates the capacity building of field-staff and committee members within registered and emerging conservancies. IRDNC are collaborating with the Darwin Project in a case study that explores the Palmwag Tourism Concession both as a potential source of benefits to enrich livelihoods and as a core conservation area for biological diversity in the region.

Collaboration with the MET's WILD Project will aid the development of appropriate participatory analysis techniques to understand the impacts on livelihoods of biodiversity conservation measures. The WILD project will provide vital background data on the key factors that shape livelihoods in relation to natural resource use and management. Other studies implemented by the WILD Project, and in support of the Darwin Project goals, include assessing the value of tourism in the communal areas.

Protocols to quantify the impact of disturbance on rhinos are being developed in collaboration with a study, undertaken on the commercial farms of Namibia, on managing black rhino dispersal, range-use and conflict after translocation. This is being implemented through the Terrestrial Ecology Research Unit at the University of Port Elizabeth. This will allow

comparisons across varying habitat types to better understand responses of rhinos at different levels of “cover”. This will also provide a broader data set for analysis.

Other studies on which the Darwin project is collaborating include: a study with African Rhino Specialist Group (AfRSG) partners to improve indices of available browse and browse condition for a Black Rhino Carrying Capacity Assessment; collaboration with a study to construct a pedigree of the Kunene black rhino, to determine levels of reproductive skew amongst males; support with an MET project to assess training needs for MET, SRT and conservancy field-staff with aim of developing an accredited training programme; and, support with a MET study to refine a database model to meet the Namibian National Meta-population management needs.

6.0 IMPACT AND SUSTAINABILITY

The quarterly planning meetings with emerging and registered conservancies have provided an opportunity to dovetail activities of the Darwin project with activities of the conservancies and ensure interest in biodiversity conservation beyond the project. The involvement of conservancy and MET field-staff in monitoring and the census of black rhino in Kunene have contributed to training monitoring teams for the region. The design of an accredited training programme in collaboration with the MET in the preceding reporting period will further strengthen the impact of the project to implement a sustainable monitoring programme. This provides a clear and achievable exit strategy.

In April 2003 the Project Officer attended a quarterly planning meeting in the historical range, where black rhino were poached out in the 1970’s. The aim here is to survey community attitudes to the re-introduction of black rhino, should this be a viable management option and should communities be interested in exploring this option. During the meeting many of the conservancies attending were interested in the project assisting them explore these attitudes amongst community members. This indicates positive attitudes to biodiversity conservation, survey work will commence in the proceeding reporting period.

7.0 OUTPUTS, OUTCOMES AND DISSEMINATION

7.1 OUTPUTS

Code No.	Quantity	Description
	Apr.–Dec. ‘02	
8	20 weeks	Project Officer, in host country
15C	1	Press release in the UK
15A	1	Press release in host country
19D	1	Radio interview on Radio Kent in the UK
19C	1	Radio interview in host country, local radio service.
18B	1	National TV piece with the BBC Really Wildshow
5, 6B	14 weeks	Start fieldwork with host partners
6A	24 part-time 4 full-time	On the job training with local field-staff
23	GBP225,000.00	Host partners and donors provide vehicle, salaries of field-staff and accommodation costs to project
	USD30,000.00	Additional funding sourced for social survey work, from the US Fish and Wildlife Service
		Only Identified the Tourism co-ordinator, official approval from MET to follow.

14B	2	Attend and presented material at Society of Conservation Biology conference at DICE in the UK in July 2002 and the IUCN AfRSG meeting, June 2002, in Zimbabwe
17B	3	Conservancy quarterly planning meetings with conservancies
	1	Steering committee meeting with project partners
	Jan.–Apr. '03	
17B	2	Conservancy quarterly planning meetings with conservancies
8,5	10 weeks with 4 local staff	Fieldwork to ground truth habitat model and collect demographic data on black rhino involving MET, SRT and Conservancy field-staff
6A	24	Field-staff receive on-the-job training in monitoring techniques during five yearly rhino census
6B	8 weeks	

Partially achieved outputs include the tourism co-ordinator only having been identified by MET partners, but not yet appointed, (section 4.4). This has meant that data on possible tourism impacts on rhinos have not been collected. Outputs of studies to better understand the impacts of human-induced disturbance (HID) on rhinos have involved assessing the types of impact and identifying the location and degree of use at entry points into the rhino area. Methodologies to assess black rhino population responses to HID are still being developed.

Training of field-staff has involved on-the-job activities during the census and additional patrols. The design of an accredited training programme in collaboration with the MET will further support these outputs in the proceeding reporting period.

Table 2: Publications

Type * (e.g. journals, manual, CDs)	Detail (title, author, year)	Publishers (name, city)	Available from (e.g.contact address, website)	Cost £
None	N/A	N/A	N/A	N/A

7.2 OUTCOMES

The outputs achieved and revisions to the workplan mean the project is still on course to achieve its original outcome. Outputs to-date include: strong partnerships; enhancements to the project to provide a clearer exit strategy; and, appropriate methodologies in place to assess the social, economic and biological management requirements to meet meta-population goals for the national population of black rhino, while maximising benefits to neighbouring communities through tourism.

7.3 DISSEMINATION ACTIVITIES

The Project Officer will be attending a meeting of the Rhino Technical Advisory Group on the 20th May 2003 in Windhoek to update all MET partners on developments with the Darwin Project activities. The Rhino Management Group (RMG) of Southern Africa will be holding their meeting in June of this year in Namibia. The project officer will be presenting

preliminary findings to the RMG at this meeting. This will allow input and refinements to methodologies.

Dissemination of project findings will continue at quarterly planning meetings during and at the end of the project. Further workshops are planned to deal with specific studies undertaken by the Darwin Project and workshops will be held to discuss biological management options for the region. Funding for these activities will come from the IUCN SADC Rhino Programme for Rhino Conservation and proposals made to the UNDP GEF Small Grants Programme.

8.0 PROJECT EXPENDITURE

Table 3: Project expenditure during the reporting period

<u>Item</u>	<u>Budget</u>	<u>Expenditure</u>
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9.0 MONITORING, EVALUATION AND LESSONS

9.1 MEASURABLE INDICATORS AND MEANS OF VERIFICATION

9.1.1 Improved Livelihoods

This project has collaborated with the MET WILD project to evaluate the impact on livelihoods from the national community-based natural resource management (CBNRM) programme. The WILD project is in its final year and will be presenting results in September 2003. Methods used during the last year to see if livelihoods have improved from the current CBNRM programme include: Participatory group work to assess who is benefiting and how; household surveys to assess cost-benefits and trade-offs for individual households across wealth categories; and targeted fieldwork and desk studies to explore the real and potential incomes from tourism, issues of equity, empowerment and improved living standards in communities.

This project will use the results from these studies as a background. The Darwin Project will explore over the following year the impacts on livelihoods from reconciling biological and CBNRM goals for black rhino management in Kunene using similar survey techniques to those from earlier studies.

Studies from the WILD project over the last year verify the positive impact CBNRM approaches to biodiversity conservation have on enriching livelihoods in the region. In Torra Conservancy, which falls in the rhino range and is home to 20% of the Kunene black rhino, benefits in 2002 totalled N\$1,099,300.00, 50% of which was from a joint venture tourism operation. In January 2003, the conservancy paid N\$630.00 to each of the 450 registered

members¹. Though not all the communities bordering the rhino range have enjoyed similar returns, the study suggests options for enriching livelihoods are realistic in this biodiversity rich area.

Two communities are involved in registering as conservancies. Of the now 12 conservancies bordering or falling on part of the Kunene rhino range eight are now registered. This is the first step to towards enriching livelihoods, and realising benefits from biodiversity conservation in the region.

9.1.2 Improved Conservation

The annual wildlife census is in its third year. Trend figures provide a quick quantifiable index of wildlife numbers as an indication of improved conservation. This census takes place in June each year and the Project Officer has been involved in counts. Increases were recorded in major wildlife species occurring in the region. These include: Springbok; Oryx; Zebra; Kudu; and, Giraffe. Preliminary results from the census of black rhino also indicate increases in the majority of the range. However, much of the increases in wildlife numbers can also be attributed to excellent rains in the region over the last five years.

Collaborative work with conservancies and partner NGO's has provided an indication of poaching levels in the project area, and the role of the conservancy on improving conservation in the region. These qualitative and quantifiable data provide a basis on which to assess the impact of this project. Poaching of antelope and other wildlife is still occurring, though at very low levels. As more and more conservancies prepare draft management plans, the quality of conservation is expected to improve over the course of this project. All eight registered conservancies now have a management plan in place; all these make provision for black rhino. Wilderness Safaris have bought into the Palmwag Tourism Concession, where 62% of the Kunene rhino occur. Land use planning of this core rhino area will be undertaken in the following year.

9.1.3 Secure Protection of Mega Fauna and Optimised Growth Rates

Indicators of population performance use criteria outlined by the African Rhino Specialist Group (AfRSG) and developed at workshops held in July 2001 and June 2002 and attended by the Project Officer. These include: percentage growth; inter-calving interval; percentage female with a calf less than one year; age at first calving; calf proportions, less than one year, one year to three and a half years, and zero to three years; percentage mortality; body condition; behavioural indicators; seasonality of birth/death; feeding behaviour; faecal monitoring; and disease impact. In assessing performance, a suite of these indicators is used relevant to the time period being assessed and the data available.

Management plans for conservancies have made provision of areas for rhino. The design of land use plans to minimise disturbance across the range area and appropriate tourism development options across the range will form part of the outputs in the following year.

The analysis of data up to January 2002 suggests the black rhino population growth rate currently stands at 3.27% per annum over the last five years. Three years of good rainfall have contributed to pushing growth above 5% in the last two years. However, the historical

¹ Humphrey, A. & Humphrey, E. (2003) *A Profile of Four Communal Area Conservancies in Namibia: Torra; Khoadi Hoas; Mayuni; and, Salambala*. A report for the MET WILD Project, Windhoek, Namibia.

impact of poor rainfall, and increased competition for browse, compounded by the escalating numbers of other wildlife species, highlights the need to consider manipulation of population in areas where growth is below 5% or likely to be heavily impacted by the onset of drier conditions. This theory is further supported by differences in performance in two of the optimum habitats. In the area with higher poaching and off-take, performance indicators suggest density-dependent factors limit growth and health of the population. Female calving intervals were significantly different across each zone. This suggests that in sites where female home range is increased relative to the availability of resources recruitment rates are reduced.²

Ongoing studies implemented as part of this project, for example the habitat suitability model, will further investigate the interaction of density-dependent and density-independent factors when predicting black rhino ranging patterns, and population responses, to provide a means to verify these indicators.

In conclusion the study has been able to cover many of the outputs first set out in the original workplan. Lessons learnt revolve around the need to secure government support and buy-in for each activity undertaken by this project and provide sufficient time for approval of these activities. The problems with the MET candidate's nomination for MSc training are testimony to this. Close collaboration with the MET Rhino-coordinator has been essential to achieving the necessary approvals. For future consideration is the fact that the National Rhino Action Plan, first drafted in June 2000, has still to be approved by Cabinet. This may hamper adoption of the management plan, to be drafted as an output on this project.

10.0 AUTHOR(S) / DATE

Joan England, financial reporting, April 28th 2003

Michael Hearn, Project, May 4th 2003

Nigel Leader-Williams, Project Leader, May 15th 2003

² Hearn, M.E. (forthcoming) *Assessment of Biological and Human Factors Limiting The West Kunene Rhino Population*. A report for the IUCN SADC Regional Programme for Rhino Conservation and Save the Rhino Trust, Namibia

APPENDIX I

DARWIN PROJECT LOGFRAME:

Project summary	Measurable indicators	Means of verification	Important assumptions
<p>Goal <i>To assist countries rich in biodiversity but poor in resources with the conservation of biological diversity and implementation of the Biodiversity Convention</i></p>	/	<p>Legislation and policy in place to enable appropriate protection of areas rich in biodiversity in line with CBD criteria</p> <p>Management plans endorsed by government and local level institutes</p> <p>Increased resources made available by host county to reach conservation goals</p>	<p>Continued political stability in the country and support from government for the conservation of biological diversity</p> <p>Continued development of appropriate CBNRM programmes that ensure community commitment to sustainable natural resource management</p>
<p>Purpose The development of a MET and community-driven programme that contributes to improving livelihoods and conservation in the region</p> <p>Secure protection of mega fauna and optimise black rhino growth rates in line with metapopulation goals of the national population of black rhino.</p>	<p>An increase in wildlife numbers in the project area</p> <p>Increased benefits to communities to enrich livelihoods</p> <p>Land use plans that make provision for black rhino</p>	<p>Annual census and monitoring data captured and analysed</p> <p>Diversity of stakeholders is increased</p> <p>Social surveys to see that future benefits to stakeholders are increased and a value is placed on rhino by local communities</p>	<p>No increase in poaching</p> <p>Continued community support for conservation and tourism in the project area</p> <p>Continued support from regional government departments for mega fauna conservation</p>
<p>Outputs A sustainable monitoring programme for the black rhino co-ordinated and run by Namibian staff</p> <p>Capacity to make informed decisions regarding development of tourism and management of black rhino</p> <p>A better understanding of rhino conservation factors within the region</p>	<p>Established monitoring teams operating in the area</p> <p>Improved monitoring programme for black rhino</p> <p>Appropriate development of tourism enterprises that minimise the disturbance to black rhino</p> <p>Ongoing growth of the black rhino population</p>	<p>Measure number of days patrolled and catch per unit effort</p> <p>Number of recognisable animals recorded over one year</p> <p>Measures of tourism impact and of occupancy of lodges and campsites</p> <p>Population health analysed and growth at least 5%</p>	<p>Commitment by all partners to implement project</p> <p>Provision of sufficient resources by partners</p> <p>Continued political stability in the region to allow maintain tourism growth</p> <p>No increase in poaching of black rhino</p>
<p>Activities Train two local coordinators to MSc level at DICE</p> <p>Train SRT, MET and conservancy field-staff</p> <p>Habitat suitability study</p> <p>Draft black rhino management plan</p> <p>Assist with ongoing land use planning at all levels</p> <p>Disseminate results</p>	<p>Agreed number of trainees complete training and have skills to implement</p> <p>Measured availability of preferred food plants, productivity, and tourism impacts, and these related to population demography data over time</p> <p>Land use plan drafted</p> <p>Workshops held</p>	<p>Staff reports, certificates, graduation of MSc students at DICE</p> <p>Data collected and analysed using a GIS and other investigative tools</p> <p>Documents drafted and results of workshops documented</p>	<p>Commitment from partners to supply project staff</p> <p>Data collected by project officer made available for analysis</p> <p>Commitment from partners during and after the project period</p>

APPENDIX II

DARWIN PROJECT WORKPLAN:

WORKPLAN - Michael Hearn (DICE/SRT) Darwin Project			2002				2003					2004					2005																						
PURPOSE	ACTIVITIES	PARTNERS	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul		
Monitor Population health and optimise rhino growth rates	Assist with co-ordination of the rhino census	SRT/MET & Conservancy																																					
	Assist co-ordination/participate in monthly patrols for the collection of rhino & ecological data																																						
	Census Report for MET/SRT																																						
	AIRSG Status Reports																																						
	Rhino Management Group Reports																																						
	Database reports																																						
Determine stocking levels of current range and areas for reintroduction	Produce 1st draft of a habitat suitability model	SRT/MET & Round River Conservation studies																																					
	Refined 1st model during fieldwork																																						
	Collect rainfall data																																						
Determine perceptions of communities within current & historical range	Fieldwork to ground truth model	SRT/USPWS & MET CBNRM Unit & Conservancy Implementing NGOs																																					
	Design of a social survey questionnaire																																						
	fieldwork to refine questionnaire																																						
Investigate representation of male rhino in population/paternity study	Fieldwork to implement questionnaire	SRT/MET & Uni. Sheffield																																					
	Produce report																																						
Determine Tourism Impacts on black rhino	Collection of entry point data, Ugab, Hoanib, Aub	SRT/MET & private operators																																					
	Supervise collection of data by MET candidate																																						
Training /capacity building	Ongoing training of field-staff	SRT/MET & Conservancy & SADC Rhino																																					
	Assist co-ordination of theoretical training of fieldstaff																																						
	2 co-ordinators undertake MSc course at DICE																																						
Co-ordination/feedback	Ongoing liaison with Partners	SRT/MET																																					
	1/4 planning meetings of conservancies committees																																						
	1/4 feedback meetings with individual conservancies/community members		All partners																																				
	Feedback meetings of key steering committee																																						
	Steering committee meeting																																						
Data presentation/workshops	Workshop on Palmwag concession, a case study in reconciling biological management and CBNRM goals	All partners																																					
	Final Workshop presenting results																																						
Analysis of data & produce papers	Liase with project Leader, Nigel Leader-Williams																																						
	Analysis of data and report writing in the UK																																						
DARWIN REPORTING	Produce final report																																						
	Annual reports																																						
	Six month reports																																						
Leave																																							

APPENDIX III

DARWIN PROJECT STEERING COMMITTEE MINUTES:

DARWIN INITIATIVE PROGRAMME

Minutes of a meeting of the Steering Committee held on the 23rd September 2002 in the conference room of the Ministry of Environment and Tourism (MET) LTA building, Windhoek

ATTENDANCE (in alphabetical order)

Ben Beytell

Andee Davidson

Gaob (King) J. || Garoeb

Isabella || Hauses

Michael Hearn

Ed Humphrey

Lucky Kasaona

Erling kavita

Nigel Leader-Williams

Blythe Loutit

Theo Ngaiyake

Garth Owen-Smith

Pierre du Preez

Benny Roman

Titus Rungondo

Sophia Swiegers

Chris Thouless

Simson Tjongarero

Martin Webb-Bowen

1.0 INTRODUCTIONS AND PRESENTATIONS:

1.1 WELCOME: MRS BLYTHE LOUTIT

Mrs Blythe Loutit, Founder Director of the NGO Save the Rhino Trust, welcomed The King, the Honourable Governor, Professor Leader-Williams and other delegates. Her welcome and introduction included a background to the Kunene area, the unique value of its population of black rhinos, and how the support of traditional leaders had been a key ingredient for the conservation of rhinos, which was the largest population outside a protected area system. The Darwin Initiative programme was welcomed as a positive initiative to take conservation of the black rhino further. Mrs Loutit closed by proposing Governor Tjiongeraro to chair the meeting. This was seconded by the Ministry of Environment and Tourism Rhino Co-ordinator, Pierre Du Preez.

1.2 THE CHAIR: THE HONOURABLE GOVERNOR SIMSON TJONGERARO

The Honourable Governor welcomed all parties. He noted with pride that Kunene holds the only significant population of rhinos outside protected areas in the world, and thanked all members who had contributed to this successful conservation programme. The Governor was pleased everyone is together to look at the future of this very important project and emphasised the need to include discussions of sustainable development, “we must respect and conserve.” Special thanks were given to King Justice Garoeb, MP, for making time available to attend the meeting.

1.3 THE PROJECT LEADER: PROFESSOR NIGEL LEADER-WILLIAMS

Professor Nigel Leader-Williams, of DICE and project leader for the Darwin Initiative Programme, gave a brief summary of DICE, its history, goals and activities. The objectives of the British Government’s Darwin Initiative Programme were also summarised. (Documentation available on request or see websites www.ukc.ac.uk/anthropology/dice/dice.html and www.darwin.gov.uk)

1.4 MICHAEL HEARN

Michael Hearn, of DICE and seconded to SRT for the duration of the three year programme, also the project officer in Namibia gave a presentation of black rhino conservation and ecotourism impacts in North-western Namibia. A printed copy of this was distributed at the meeting, and is attached. Besides its specified training outputs, the key research issues for this project were as follows:

- Ongoing biological management
- Models of carrying capacity
- Building local human capacities
- Determine human-induced impactsLand use zoning and access

2.0 DISCUSSION POINTS

2.1 DOES TOURISM HAVE AN IMPACT?

2.1.1 Continental perspective

The known interactions between tourism activities and other populations of rhinos were discussed. Some studies have investigated possible impacts of tourists, for example with Indian rhino in Chitwan NP in Nepal, and with black rhino in the Masia Mara in Kenya. In the Masia Mara studies have also investigated the impacts of livestock on rhinos. However, it was recognised that the committee should not read too much into regional comparisons at this stage, before any studies had been conducted in this area. For example, the unique desert environment provides little vegetation cover for rhino, and this is a key factor both for browse and “security” by providing places to rest

up in the day. Any comparative study should look at the mitigating circumstances where rhino and tourism works within other regions.

2.1.2 Indirect, and direct human-induced impacts in Kunene

Wide discussion on this topic recognised that a “suite” of factors probably impact on rhinos in Kunene. These include: tourism; rhino monitoring activities and other game monitoring; competition with other wildlife species; disturbance by light aircraft; shortage of water due to human and livestock use; and, livestock displacing rhino and competing for browse. Areas within the range of the Kunene black rhino population offer an opportunity to explore areas under differing degrees of “tourism impact”. A case study of the southern area, where all calves born between 1995 and 2000 (4) died prior to reaching 6 months also provides an opportunity to highlight interactions between factors that might impact rhino. Ecological stress compounded by tourism activities, and other indirect human-induced impacts, for example livestock pressure, are all thought to have played a role. Road penetration, recording rhino reactions to tourism viewing, and data from entry points are all examples of information that would offer some insight into HOW tourism impacts rhino and finding tolerance levels. The tourism industry recognises impacts are possible and would be detrimental to rhinos, as well as to the area, its people and the tourism industry itself. The industry would welcome an appropriate form of policing within conservancies and concession. The industry could regulate itself, and encourage people to be co-operative and penalize them if they are not. The individual self-drive tourist (not on a tour) is the “problem” and was felt to pose the greater threat, as there is currently no means to regulate them. Although specific legislation does not exist, the existing legislative powers of traditional leaders, conservancies, and concessions, and self-regulation within FENATA itself, might in combination provide means to regulate access to certain areas.

2.1.3 Trade-offs for communities

When considering tourism impacts at the community level, it would be dangerous to assume that conservation and tourism are conflicting “head to head” issues. Although the majority of the rhino occur in uninhabited areas, it must be recognised that rhino conservation efforts still impact communities in the north-west, through land exclusion, and competition over access to water and forage for goats. Therefore, tourism provides a vehicle for farmers to “trade-off” the impact that rhino conservation has on livelihoods. Nevertheless, understanding how ecological stresses and indirect and direct human-induced factors impact the rhino population is a prerequisite to developing tourism ventures focused on rhino. Discussion also dealt with the importance of questioning what is the perceived benefit for communities in rhino conservation, and if the sole reason for the protection of the rhino and the habitat is to accrue benefit. A balance needs to be found that would mitigate some of the problems associated with regulating access into the area, without removing opportunities for development.

2.2 CO-ORDINATION AND COLLABORATION

2.2.1 Collaborative research and other programmes

Other ongoing studies were that could provide mutual support to this programme were outlined, and the point was made that overlapping issues should be recognised and integrated with research undertaken through the Darwin Initiative programme. SRT will implement a questionnaire survey in areas bordering the current range, to explore the perceptions and trade-offs for communities amongst the potential areas for reintroduction. Planning initiatives from the Directorate of Tourism, e.g. the North-west Tourism Plan, are ongoing and can provide a vehicle through which to

implement appropriate means of regulating tourism. This could draw together these processes and initiatives, as the issue of vehicle access into the North-west is a central theme. The North-west Tourism Plan is going into its third phase and will also screen development opportunities in the area and aim to strengthen the EIA process. There is a need to not be overly sensitive towards development, but to reconcile both development and biological management goals. The Hobatere concession area has received approval from the Minister to receive rhino. It has been earmarked to be the first area to bring Kunene rhino back to the communal areas. The Darwin Initiative programme could assist with recommendations on carrying capacity using findings from the habitat suitability model. Various other initiatives of the MET and the role of the Rhino Co-ordinator regarding rhino were detailed. These included Etosha, the custodianship programme, Hardap and Waterberg. It was noted that rhinos from Kunene had provided important input to the programmes in many of these areas. As part of the custodianship programme, the Erongo area is one of many that has applied to the MET for rhinos. Each application will be considered on a case by case basis, as various security and habitat needs will have to be met prior to receiving rhino from the MET.

2.2.2 Training needs

A key component of the Darwin Initiative programme is training. Two levels of training are proposed: professional co-ordinators, 1 from MET and 1 from SRT, will be trained to MSc level; and, field staff from SRT, MET, and conservancy will receive on the job training in monitoring and data collection. Input on the roles and future skill needs of these staff were discussed, as were the various target groups. Support training was needed for conservancy field-staff, as well as for concession personnel in areas where rhino-related tourism activities occurred. Training could focus on using tourism as a monitoring aid to help in the collection of data. Sensitising tourism operations and monitoring staff on how to approach rhino to minimise disturbance was a key requirement.

3.0 CONCLUSION

3.1 KEY NOTE INPUTS FROM DELEGATES

3.1.1 The Director of the Directorate of NRM: Ben Beytell

The Director informed the meeting that MET has tried to address the issue of disturbance. Cabinet level approval had been given to control tourism in situations where uncontrolled tourism could be a threat. The problem was under which law MET should implement this without restricting constitutional rights to personal freedom of movement. The activities of registered tour companies can be controlled by withdrawing their registration. The main problem remained foreign visitors who took out personal hires of 4 X 4 vehicles. Tourism regulation is hard to enforce in the North-west and can only be effectively regulated in a protected area. Conservancies could try to negotiate that tour companies are always accompanied by community game guides. Management plans can also be a tool for the conservancies, as they have conditional rights to utilize huntable game for their own use throughout the year, as long as they provide feedback to MET. The Darwin Initiative programme could examine the zoning issue, in order to avoid the conflicts of interest seen recently between hunters and tourists in the North-west. Registration of Conservancies does not allow them to prevent other people settling in the area, and MET recognises that conservancy legislation has gaps. The future success of conservation efforts requires appropriate zoning from the conservancies to help MET provide support to regulating unrestricted access.

The future habituation of the Kunene rhino is possible, given that rhinos in Etosha exposed to tourism are more "tame". Kunene rhinos remain very wild animals, as they are little exposed to

people. Indeed, this has been their salvation during previous poaching episodes. Currently, rhino tourism is going on unchecked and conflicts could have resulted in the loss of the calves in the southern area. The Director welcomed the Darwin Initiative programme and hope it would benefit the planning process.

3.1.2 The Chair: The Honourable Governor Tjongarero

The Chairman noted that the meeting had covered all the key issues. These included: capacity building and its needs at various levels; co-ordination within existing programmes; sensitisation of conservancies and other stakeholders about rhino conservation; the mutual respect needed by the different NGO's in the region, so that everyone wins; and, the performance of rhinos in relation to carrying capacity and competition with other browsers.

The Chairman stressed the key question of how people on the ground can benefit from conserving rhinos: "to control is not to chase away tourists. We must control to survive and work together as a team for our beloved county."

The Chairman then closed the meeting.

3.2 CONSENSUS ON ISSUES DISCUSSED AT THE MEETING

1. Investigate how tourism impacts black rhinos in Kunene;
2. Investigate methods to mitigate some of the problems associated with regulating access into the area, without removing opportunities for development;
3. Collaborate with the Directorate of Tourism's North-west Tourism Planning process and questionnaire survey work to give direction to the programme;
4. Undertake studies of habitat suitability, to aid the estimation of carrying capacity in the current and former range;
5. Support training needs for all parties who have a stake in the survival of the rhino;
6. Convene smaller update meetings for local delegates on a quarterly basis;
7. Hold steering committee meetings annually, the next to be in September 2003 in the North-west.

APPENDIX IV

HABITAT SUITABILITY MODEL - FIRST DRAFT

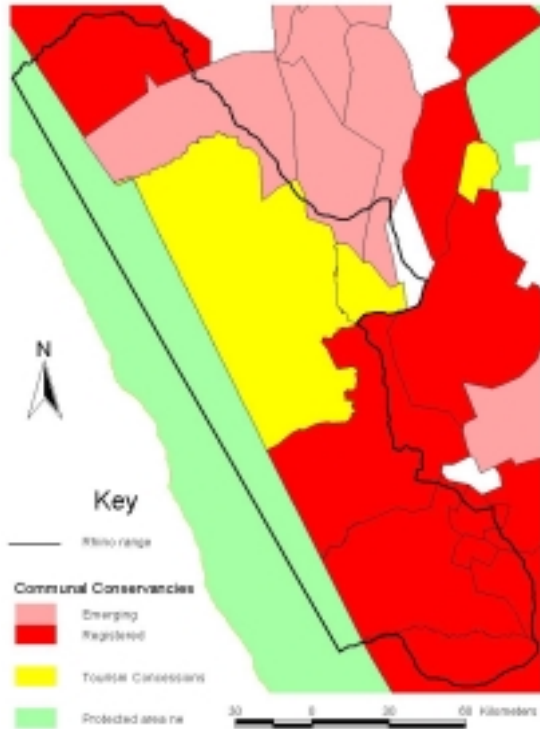


Figure IVa: Land use of north-west rhino range.

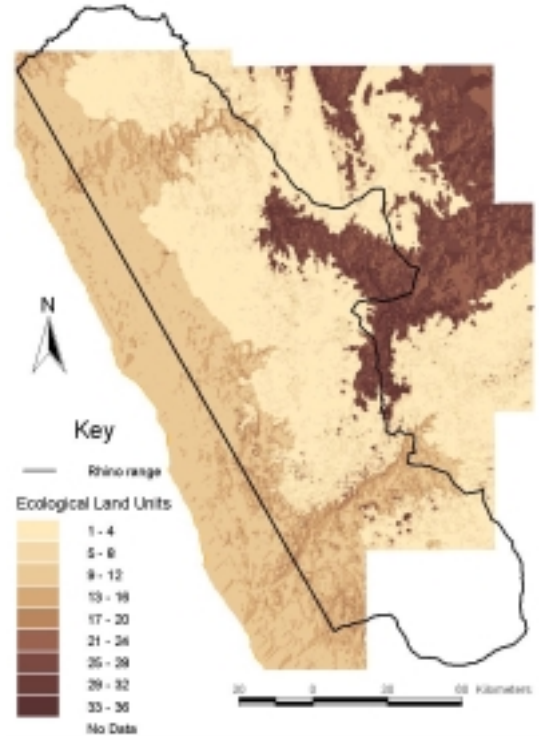


Figure IVb: Suitability model, with Ecological Land Units used to stratify habitat sampling.

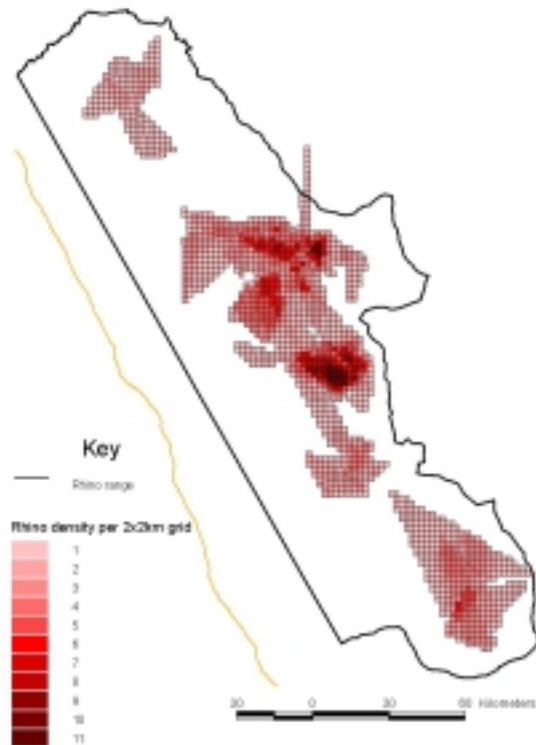


Figure IVc: Rhino density across range, used to stratify habitat sampling.

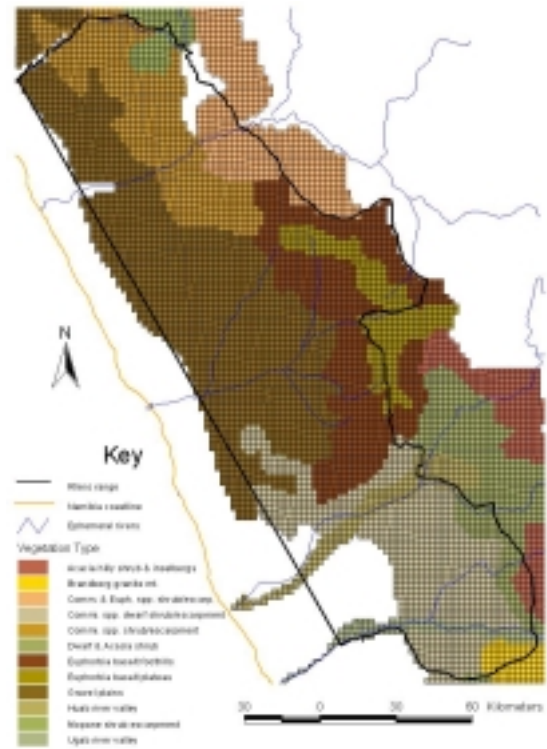


Figure IVb: Vegetation/topographical units, used to stratify habitat sampling.